

The comments in this submission demonstrate that the applicant has not provided sufficient evidence to confirm that their proposals meet the requirements of the NFCC (National Fire Chiefs Council) Guidance for Grid Scale BESS (Battery Energy Storage Systems). The proposals should meet the NFCC guidance, to ensure that sufficient BESS fire risk control/mitigation measures have been implemented, to consider the residual risk to be as low as is reasonably practicable.

I request that the Planning Inspectorate consider whether the potential catastrophic risk impacts from BESS thermal runaway have been adequately controlled in this application. The applicant has proposed that the 84 BESS sites are distributed over a large area of East Yorkshire. In the event of a cyber attack, resulting in several BESS containers going into thermal runaway, then Holderness and Hull could be impacted (see map in A5).

Thermal runaway events in BESS containers, have resulted in major incidents causing harm to people and the environment. The proposed application has the potential to contaminate the underlying sensitive aquifer. The Planning Inspectorate dismissed an appeal (Pound Road BESS Appeal Ref: APP/U1105/W/23/3319803 see A1), where similar concerns were raised.

Thermal runaway BESS major incidents have taken several days to control, which have flared up again weeks latter (see A6). In 2025 there have been 3 BESS incidents in the UK, at East Tilbury (Essex), Rothienorman (Aberdeenshire) and Cirencester (Gloucestershire). This demonstrates that there is a risk of a major incident occurring from BESS container fires. These risks are identified in a BESS Hazard Assessment document, which was carried out by engineering consultant firm Atkins for the HSENI (see A2).

The applicant stated at the ISH3 (Issues Specific Hearing 3) meeting on 11.12.25, that they would work to the National Fire Chief Council (NFCC) Guidance for Grid Scale BESS (see A3). This guidance includes measures to reduce the risk of fire spreading from one BESS container to another, to reduce the quantity of harmful chemicals released. However, the application has not satisfied the requirements in this guidance to maintain a 6m separation distance between BESS containers. The proposed separation distance between BESS containers is indicated as 3m in REP5-069 section 5.8.9 the OBSMP (Outline Battery Safety Management Plan). There are no proposed suitable distance reduction features between containers (e.g. fire/blast walls or water spray curtains), based on a design by a competent fire engineer, as required in the NFCC guidance:-

'A standard minimum spacing between units of 6 metres is suggested unless suitable design features can be introduced to reduce that spacing. If reducing distances a clear, evidence based, case for the reduction should be shown.

Any reduction in this separation distance should be design based by a competent fire engineer.'

The BESS containers are proposed to be located in fields, as shown in drawing REP5-023, which are not near any existing street fire hydrants. The applicant has not included suitable fire water tanks or hydrant systems to cool adjacent BESS containers, as required in the NFCC guidance:-

'As a minimum, it is recommended that hydrant supplies for boundary cooling purposes should be located close to BESS containers (but considering safe access in the event of a fire) and should be capable of delivering no less than 1,900 litres per minute for at least 2 hours. Fire and rescue services may wish to increase this requirement dependant on location and their ability to bring supplementary supplies to site in a timely fashion.'

The applicant has not made suitable provision to contain contaminated fire water runoff, as identified by the Environmental Agency comments EA16 in RR-005 & EA-16 in REP2-153, which is required in the NFCC guidance:-

'Consideration should be given, within the site design, to the management of water run-off (e.g. drainage systems, interceptors, bunded lagoons etc).'

'Suitable environmental protection measures should be provided. This should include systems for containing and managing water runoff. System capability/capacity should be based on anticipated water application rates, including the impact of water based fixed suppression systems.'

The proposed BESS locations are in flood zones. The applicant has not provided 2 suitable alternative emergency access points or considered flood mitigation access measures, as shown in drawing REP5-023, which does not meet the NFCC guidance:-

'Suitable facilities for safely accessing and egressing the site should be provided. Designs should be developed in close liaison with the local FRS as specific requirements may apply due to variations in vehicles and equipment.

This should include:

\* At least 2 separate access points to the site to account for opposite wind conditions/direction.'

'Sites located in flood zones should have details of flood protection or mitigation measures.'

In ISH2 (Issue Specific Hearing 2) meeting on 23.10.25, the applicant considered that harmful chemicals, released during a thermal runaway event, would be contained in the BESS container.

Defensive firefighting continued on site for a total of 59 hours at the Carnegie Road BESS fire in 2020 (see A7). The applicant has not stated the fire resistance of the BESS containers (typically a maximum of 2 hours). In a prolonged fire the container roof/base/wall/doors could suffer structural damage and harmful chemical loss of containment.

At the same meeting the applicant indicated that the proposed BESS containers would be fitted with flammable gas detectors, which would open vents to release the flammable harmful chemicals outside the container.

The OBSMP REP5-069 indicates that proposed BESS containers are to be fitted with explosion deflagration vent panels. In the event of a high internal pressure event, following a thermal runaway, the pressure relief panels would open, releasing the harmful chemicals.

A BESS thermal runaway event could be initiated when the container doors are open, e.g. during construction, installation, maintenance, decommissioning, theft or vandalism activities, which would release the harmful chemicals.

Venting of the harmful chemicals would also vent off fire suppression chemicals, which would reduce the effectiveness of this potential fire mitigation measure. The suppression system can only be used once, so any subsequent BESS thermal runaway flare up events could not initiate a second release of suppressant, reducing the effectiveness of this potential fire mitigation measure.

A BESS thermal runaway produces harmful chemicals, including toxic Hydrogen Fluoride. The applicant has not provided evidence of dispersion modelling for the proposed BESS containers. At ISH3 meeting the applicant indicated a typical smoke plume dispersion distance of 25 to 30m to reduce the harmful level of Hydrogen Fluoride, down to a level of 1 ppm

(parts per million). However, a BESS container plume dispersion modelling, calculated to reduce Hydrogen Fluoride concentration to 30 ppm (causes permanent harm to people) required a distance of 240m (see Table 6.1 in the A2). The dispersion methodology contained in BS60079 Part 10 has been used to calculate a dispersion distance of 2,200m, to reduce the Hydrogen Fluoride plume concentration to 1 ppm (see A4). This was based on D5 data in Table 6.1 (see A2). This methodology has been validated by comparison with data down to 1 ppm from an alternative Hydrogen Fluoride plume dispersion model. The areas impacted by the harmful Hydrogen Fluoride dispersion distances of 240m and 2,200m are indicated on an attached map (see A5) for some of the 336 BESS containers. These harmful area zones include several villages and schools at Tickton, Long Riston and Leven.

The above demonstrates that the BESS containers can not be guaranteed to contain harmful chemicals produced in a thermal runaway, which could then impact people, wildlife and pollute the surrounding land, water and air environments. In January 2025 a fire occurred at the Moss Landing BESS site in California, which latter reignited in February 2025. This BESS fire released a large toxic smoke plume, containing harmful chemicals to people and the environment. An evacuation order, for approximately 1,500 residents, was implemented over an area with a 3-mile radius. Subsequent analysis for BESS metal fallout contamination from the fire, measured concentration peaks in the Hester Marsh wetland, located approximately 1–3 km east of the facility (see A6). There is proposed California legislation, in the wake of these BESS fires, under Assembly Bill 303, which includes restrictive provisions to prohibit BESS facilities, greater than 200 MWh, within 3,200 feet (975m) of sensitive receptors.

The applicant has not provided suitable incident impact assessments, as required in the NFCC guidance:-  
'Identification of any surrounding communities, sites, and infrastructure that may be impacted as a result of an incident.'  
Appendix

A1. Pound Road BESS Appeal Ref: APP/U1105/W/23/3319803

[https://www.richardbuxton.co.uk/wp-content/uploads/2024/03/Appeal-Decision-3319803.pdf\\_292952\\_1.pdf](https://www.richardbuxton.co.uk/wp-content/uploads/2024/03/Appeal-Decision-3319803.pdf_292952_1.pdf)

A2. Hazard Assessment of Battery Energy Storage System

[https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN010106-003806-DL2 - Alan B Smith - Appendix 6 \(2 of 2\) - Academic Reports.pdf](https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN010106-003806-DL2 - Alan B Smith - Appendix 6 (2 of 2) - Academic Reports.pdf)

A3. National Fire Chief Council Grid Scale BESS Planning Guidance

<https://drive.google.com/file/d/1qMI8WUU2e3oJZLRaDENkB6lc5nvQyKou/view>

A4. Dispersion Calculation for BESS Container Release of Hydrogen Fluoride

A5. Hydrogen Fluoride dispersion distance map:-

A6. Moss Landing analysis <https://www.nature.com/articles/s41598-025-25972-8>

A7. Carnegie Road BESS fire report

[https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN010106-003805-DL2 - Alan B Smith - Appendix 6 \(1 of 2\) - Merseyside Fire and Rescue Service \(MFRS\) Liverpool BESS Reports.pdf](https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN010106-003805-DL2 - Alan B Smith - Appendix 6 (1 of 2) - Merseyside Fire and Rescue Service (MFRS) Liverpool BESS Reports.pdf)

# Appendix 4

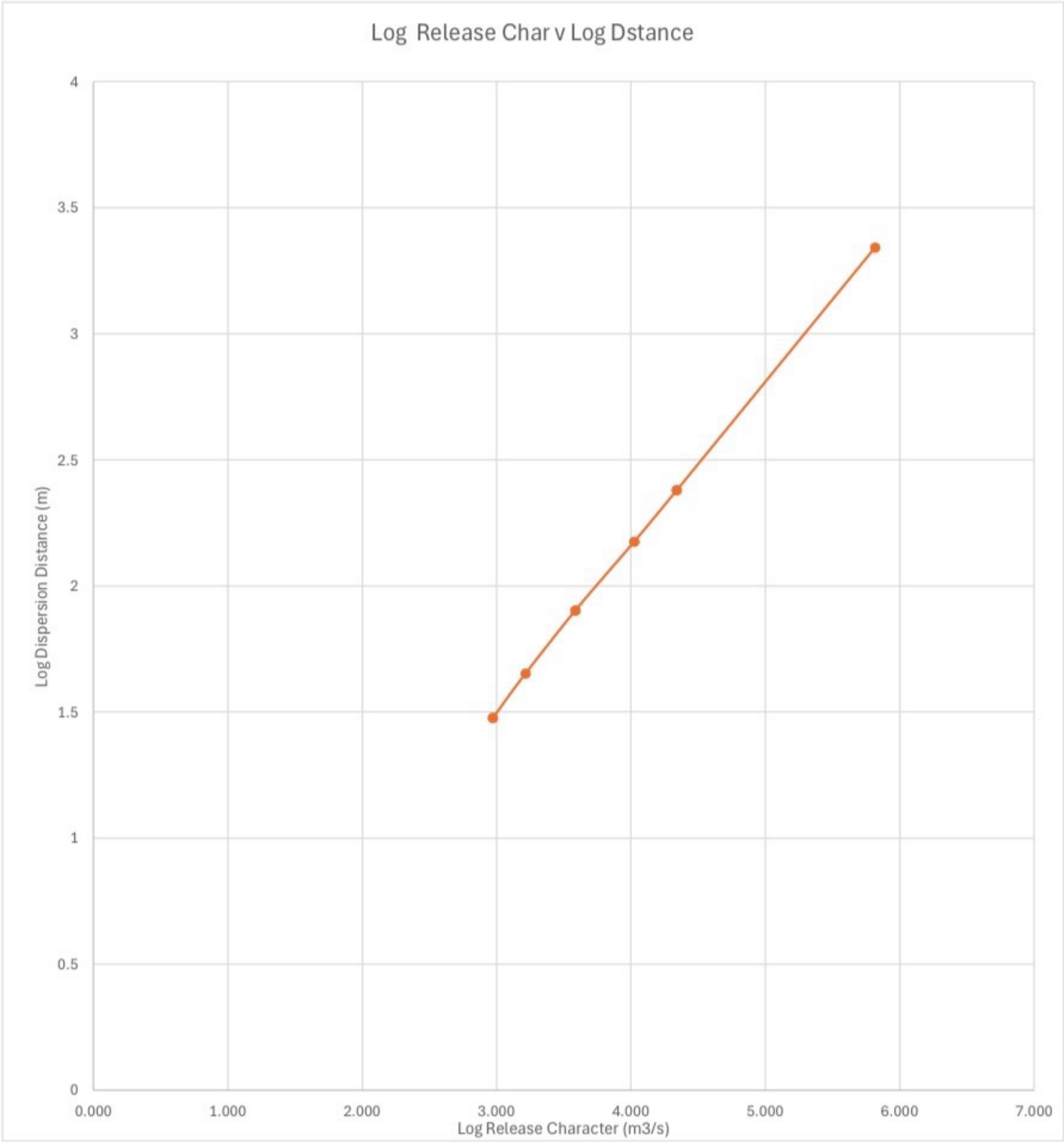
## Dispersion Calculation for BESS Container Release of Hydrogen Fluoride

Based on dispersion modelling carried out by Atkins for HSENI presented in Table 6.1 for dispersion conditions D5:-  
[EN010106-003806-DL2 - \[REDACTED\] - Appendix 6 \(2 of 2\) - Academic Reports.pdf](#)

Estimate of dispersion distance for Hydrogen Fluoride concentration to 1 ppm via the methology in BS60079 Part 10

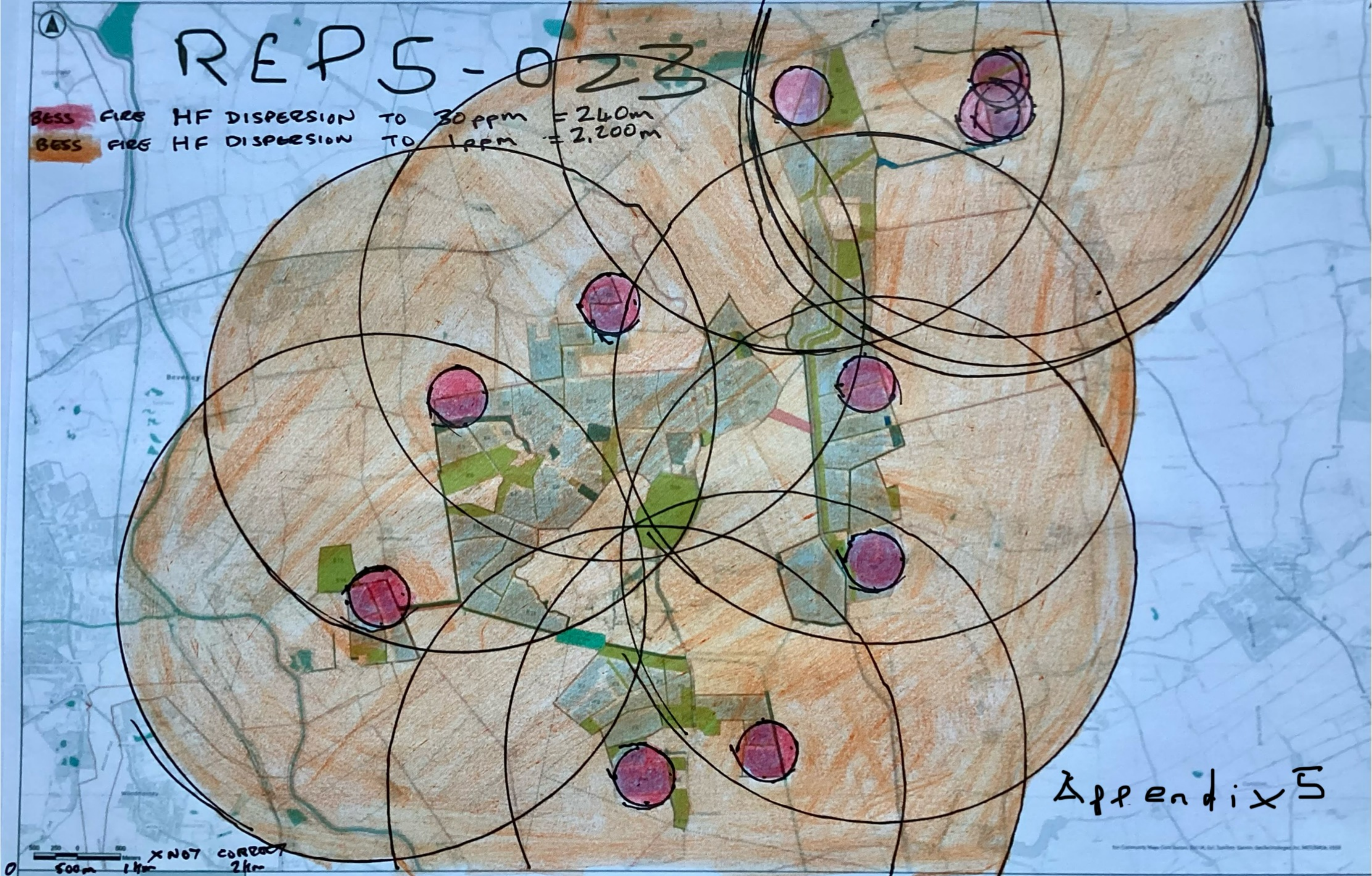
Release Character (RC) = Discharge Rate Wg (Kg/s) / (Desity (Kg/m3) x Concentration (Vol/Vol))

Wg (Kg/s)	ppm	Concentration	Release Char	Log RC	Log Distance	Distance (m)
0.556	700	0.0007	936.2	2.971	1.4771	30
0.556	400	0.0004	1638.3	3.214	1.6532	45
0.556	170	0.00017	3854.9	3.586	1.9031	80
0.556	62	0.000062	10569.8	4.024	2.1761	150
0.556	30	0.00003	21844.3	4.339	2.3802	240
0.556	1	0.000001	655328.8	5.816	3.3424	2200



# REP5-023

BESS FIRE HF DISPERSION TO 30ppm = 240m  
 BESS FIRE HF DISPERSION TO 1ppm = 2,200m



## Appendix 5

500m 1km 2km  
 X NOT CORRECT

The Base Mapping is based upon Ordnance Survey (OS) data. Reproduced by permission of Ordnance Survey on behalf of HM Government. © Crown copyright and database right 2011.  
 Ordnance Survey 100000000

Notes:  
 1. This drawing is for illustrative purposes only.  
 2. The location of features shown are indicative only to show the key features of Peartree Hill Solar Farm for which development consent is sought.  
 3. The Indicative layout demonstrates one way that the Proposed Development could be undertaken within the parameters of the SCED (Sustainable Community Development) consent is not sought specifically for this layout.  
 4. Underground features (such as cables, peeling pipes, and boundary treatments (such as perimeter fencing and CCTV) are not shown.

Rev	Date	By	Check	Appr	Auth
1.0	13/10/2011	MA	EN	AD	MD

**RWE**

Project Name  
 Peartree Hill Solar Farm

Drawing No.  
 Environmental Statement Volume 3, Figure 3.1: Indicative Operational Layout Plan

Rev	Date	By	Check	Appr	Auth
1.0	13/10/2011	MA	EN	AD	MD